**Results:** The Medtronic CoreValve (MCV) prosthesis was utilized in 68 (50%) patients, and the Edwards SAPIEN (ES) in 69 (50%), respectively. More than mild PAR was observed in 43 (32%) patients. In MCV patients, aortic valve calcification volume and mass were higher in patients with more than mild PAR compared to those with none or mild PAR (p=0.04 and p=0.03). In ES patients, annulus area and perimeter undersizing was higher in patients with more than mild PAR compared to those with no or mild PAR (p=0.001). By multivariate logistic regression analysis, aortic valve calcification mass was the only independent predictor for PAR in MCV patients (p=0.02), while in ES patients the only independent predictor was THV undersizing (p=0.001) irrespective of calcific burden.
**Conclusion:** For self-expandable THV, aortic valve calcification mass was the strongest predictor for PAR, while in balloon-expandable THV, it was prosthesis undersizing. Hence, in patients evaluated for TAVI these parameters should guide selection of the prosthesis type.
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## Long-term clinical outcome of high-risk patients with severe aortic stenosis according to treatment modality: TAVI vs. SAVR vs. medical treatment

*St. Stortecky[1,*], Th. Pilgrim[1], L. Englberger[2], M. Rothenbuehler[3], Ch. Huber[2], F. Praz[1], C. O'Sullivan[1], L. Büllesfeld[1], A. Khattab[1], B. Meier[1], St. Windecker[1], Th. Carrel[2], P. M. Wenaweser[1]*
*[1]Cardiology, [2]Cardiovascular Surgery, Inselspital, [3]Clinical Research, Clinical Trials Unit, Bern, Switzerland*

**Introduction:** To assess long-term clinical outcome of high-risk patients with severe aortic stenosis as a function of treatment allocation to TAVI, surgical aortic valve replacement (SAVR), or medical treatment (MT) after interdisciplinary assessment within the Heart team.
**Method:** Patients with symptomatic severe aortic stenosis were consecutively enrolled into a prospective single center registry.
**Results:** Between April 2007 and September 2010 a total of 442 patients (age 82±6 years) at increased risk for surgery (log. EuroSCORE 22±15) were allocated to MT (n=78, STS-score 6.5±4.1), SAVR (n=107, STS-score 4.8±5.3), or TAVI (n=257, STS-score 6.4±5.0). After a mean duration of follow-up of 48±10 months all-cause mortality among patients undergoing MT, SAVR or TAVI amounted to 81%, 37% and 43%, respectively (p<0.001). The hazard ratio for a composite endpoint of death, major stroke, and myocardial infarction was significantly lower in patients undergoing SAVR or TAVI as compared to MT in an adjusted analysis (SAVR versus MT: HR 0.31, 95% CI 0.21-0.46) (TAVI versus MT: HR 0.34, 95% CI 0.25-0.46). No significant difference in the risk of the composite endpoint was documented between patients treated with SAVR as compared to TAVI (adjusted HR 0.88, 95% CI 0.62-1.25). Valve-related repeat interventions beyond 30 days occurred in 3 patients with TAVI and in none of the patients undergoing SAVR. Eleven patients from the MT arm crossed over to TAVI (n=9) or SAVR (n=2) after a mean of 21±12 months and experienced a significant survival benefit as compared to patients with no conversion of treatment strategy. In a multivariate analysis across the entire cohort, SAVR (HR 0.39, 95% CI 0.24-0.61; p<0.001), TAVI (HR 0.37, 95% CI 0.26-0.52), and female gender (HR 0.72, 95% CI 0.53-0.99) were associated with improved survival. In turn, BMI ≤20kg/m2 (HR 1.60, 95% CI 1.04-2.47), diabetes (HR 1.48, 95% CI 1.03-2.12), peripheral vascular disease (HR 2.01, 95% CI 1.44-2.81), atrial fibrillation (HR 1.74, 95% CI 1.28-2.37), and severe pulmonary hypertension (HR 1.43, 95% CI 1.03-2.00) were identified as independent predictors of all-cause mortality.
**Conclusion:** In this selected cohort of high-risk patients with severe aortic stenosis assessed within the Heart team, long-term clinical outcome through 5 years of follow-up was comparable between patients treated with SAVR or TAVI in an adjusted analysis. Patients with medical treatment had a dismal prognosis.
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